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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,655	03/30/2004	Dong-Rycol Lee	04-03	3414

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/812,655	LEE ET AL.	
	Examiner	Art Unit	
	Christopher R. Lamb	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-11,13-21,23 and 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-11,13-21,23 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-7, 9, 10, 11, 13-17, 19-21, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buechler et al (US 6,219,316) in view of Shinoda et al. (US 5,303,216).

Regarding claim 1:

Buechler discloses a method for forming light beams onto a disc for a plurality of disc formats (Fig. 2; column 1, line 55 to column 2, line 20; column 4, lines 25-35), comprising:

determining a first LCM (least common multiple) (Fig. 2: the 7/4 P1);

determining a second LCM (least common multiple) (Fig. 2: the ¾ P2);

directing a main beam onto the disc (visible in Fig. 2; column 4, lines 25-35); and

directing a side beam onto the disc with a displacement from the main beam (the side beams are visible in Fig. 2).

Buechler does not disclose:

(A) wherein each of the LCMs is an integer multiple of the track pitch for their respective disc formats.

(B) determining an average LCM (least common multiple) that is an average of the first and second LCMs, wherein the first LCM is in a first tolerance range from the average LCM for the first disc format, and wherein the second LCM is within a second tolerance range from the average LCM for the second disc format;

the displacement being the average LCM.

Regarding (A):

Buechler discloses wherein each of the LCMs is an integer multiple of one-quarter the track pitch for their respective disc formats.

Buechler uses the 3-beam tracking method (see, for example, column 1), in which the standard displacement between main and side beams is one-quarter of the track pitch.

Shinoda discloses a differential push-pull tracking method in which the displacement between main beams and side beams is one-half the track pitch for the disc format (column 1, lines 35-45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Buechler as taught by Shinoda to use the differential push-pull tracking method, because the two methods are used in the same environment, for the same purpose, and achieve the same result (this is shown by Shinoda's discussion in column 1, lines 10-50).

With the differential push-pull tracking method, the LCM distance of Buechler would become an integer multiple of one-half the track pitch for the respective disc

formats (because the differential push-pull spacing is twice the 3-beam method spacing).

Finally, note that half the "track pitch" of Buechler and Shinoda is equivalent to one full "track pitch" of Applicant's disclosure. (In Buechler and Shinoda, the "track pitch" is the distance from land to land or groove to groove; in the Applicant's disclosure, the "track pitch" is the distance from land to groove or groove to land).

Thus in Buechler in view of Shinoda, by Applicant's definition of "track pitch," discloses:

determining a first LCM (least common multiple) that is a first integer multiple of a first track pitch for a first one of the disc formats;

determining a second LCM (least common multiple) that is a second integer multiple of a second track pitch for a second one of the disc formats.

Regarding (B):

As noted above, Buechler does not disclose determining an average LCM, the displacement being the average LCM.

However, in column 5, lines 25-35, Buechler discloses that the displacement can be selected in a range from the first LCM to the second LCM. The average falls within the range disclosed by Buechler.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Buechler in view of Shinoda to include determining an average LCM (least common multiple) that is an average of the first and second LCMs, wherein the first LCM is within a first tolerance range from the average LCM for the first

disc format, and wherein the second LCM is within a second tolerance range from the average LCM for the second disc format; the displacement being the average LCM.

The motivation would have been: in the course of routine engineering optimization/experimentation to determine the best value. Moreover, absent a showing of criticality, i.e., unobvious or unexpected results, the relationships set forth in these claims are considered to be within the level of ordinary skill in the art.

Additionally, the law is replete with cases in which the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range(s); see In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions; see Gardner v. TEC Systems, Inc., 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Regarding claim 3:

In Buechler in view of Shinoda, the average LCM is a minimum of possible value (Buechler chooses the spacing that is as small as possible: column 4, lines 25-50).

Regarding claim 4:

In Buechler in view of Shinoda, each of the first and second integer multiples is a respective odd integer (3 and 7, respectively, based on the quarter-track pitch spacing of Buechler in Fig. 2).

Regarding claim 5:

In Buechler in view of Shinoda, the method further comprises directing another side beam onto the disc on another side of the main beam with substantially the same displacement from the main beam (the two side beams are visible in Buechler Fig. 2).

Regarding claim 6:

In Buechler in view of Shinoda, the method further comprises using the main and side beams reflected from the disc for generating a tracking error signal (Buechler column 4, lines 25-35, as modified by Shinoda for differential push-pull tracking).

Regarding claim 7:

In Buechler in view of Shinoda, the method further comprises using the main and side beams reflected from the disc for generating a DPP (differential push-pull) error signal (taught by Shinoda as discussed above).

Regarding claim 9:

In Buechler in view of Shinoda, the main and side beams are each directed onto a separate one of land or a groove on the disc (this is inherent: Buechler does not explicitly state there are lands and grooves on the disc, but they are inherent to the types of discs disclosed by Buechler, and the spot pattern depicted in Fig. 2 has the main and side beams directed onto these separate areas).

Regarding claim 10:

The method of Buechler in view of Shinoda further comprises:

generating the main and side beams with light from a laser diode passing through a grating (Buechler column 3, lines 35-50); and

adapting at least one of a pitch of the grating and a distance of the laser diode to the grating to affect the displacement (the grating must have been designed, or "adapted," to create the displacement disclosed by Buechler in view of Shinoda).

Regarding claims 11, 13-17, 19-21, 23, and 24:

These claims are similar to the earlier method claims and are similarly rejected: the elements of the claimed system have already been identified in the rejection of the previous claims.

3. Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buechler in view of Shinoda as applied to claims 5 and 15, respectively, above, and further in view of Yanagawa (US 5,363,358).

Regarding claim 8:

Buechler in view of Shinoda discloses a method as discussed above in the rejection of claim 5.

Buechler in view of Shinoda does not disclose "using only the main beam reflected from the disc for generating an error signal when any of the side beams is outside of tracks on the disc."

Yanagawa discloses using only the main beam reflected from the disc for generating an error signal when any of the side beams is outside of the recorded area

on the disc (abstract: outside of the recorded area is equivalent to outside of the recorded tracks, or "outside of tracks" on the disc).

Yanagawa discloses this is necessary to avoid tracking servo failure in the unrecorded areas (column 1, lines 45-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Buechler in view of Shinoda using only the main beam reflected from the disc for generating an error signal when any of the side beams is outside of tracks on the disc, as taught by Yanagawa.

The motivation would have been to avoid the tracking servo failure disclosed by Yanagawa.

Regarding claim 15:

This claim is similar to claim 8 and is similarly rejected.

Response to Arguments

4. Applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

Some of the claims were previously rejected as unpatentable over Buechler in view of Shinoda and remain rejected as obvious over that prior art: however, the rejection itself it not the same as before.

Applicant's argument centers on using the average of the two LCMs. Applicant argues that Buechler does not disclose this step. However, as noted in the rejection above, Buechler does disclose a range which includes the average, and selecting the

average of the two values would be obvious since the range extends from the one value to the other.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (571) 272-5264. The examiner can normally be reached on 9:00 AM to 6:30 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 5/1/07

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